

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 96-070

SITE CLEANUP REQUIREMENTS FOR THE CLEANUP OF PETROLEUM IMPACTED SOILS

U.S. ARMY
PRESIDIO OF SAN FRANCISCO
SAN FRANCISCO, CALIFORNIA

The California Regional Water Quality Control Board (hereinafter Board) finds that:

1. SITE DESCRIPTION

Site Ownership / Location. The Presidio of San Francisco (hereinafter may be referred to as PSF or the site) was a former Federal military installation occupied by the U.S. Army that is now under the jurisdiction of the National Park Service. PSF lies in the northern end of the San Francisco Peninsula and is bounded on the west by the Pacific Ocean and on the north by the San Francisco Bay. Figure 1 is a Location/ Site map of PSF.

Underground Storage Tanks (USTs), Aboveground Storage Tanks (ASTs) and a fuel distribution system (FDS) were constructed to provide for sitewide automotive, aircraft, vessel, heating, and backup generator requirements, resulting in the construction of over two hundred tanks and several miles of pipeline. The discharger has been working on the removal and closure of the USTs, ASTs and FDS system since 1990.

2. SITE HISTORY, PRESENT AND FUTURE USAGE:

- A. The PSF was established in 1776 as a military garrison under commission to the government of Spain. The PSF has served as a major mobilization and embarkation point during several conflicts, a major medical debarkation center, and a coastal defense for the San Francisco Bay area. The PSF had been a multi-mission post with military activities conducted under separate commanders stationed as tenants or satellites on the PSF. Types of industrial operations performed at the PSF are associated with maintenance repair of post equipment and facilities.
- B. Historical property use included passenger transport both via air and ground support vehicles, cargo transport and associated facilities operations, maintenance operations for both airplanes and ground support, a U.S. Coast Guard facility, a fuel distribution depot, aircraft fueling operations, a

materials testing laboratory, storm water holding basins, and a domestic water treatment plant.

- C. In December of 1988, the Secretary of Defense's Commission on Base Realignments and Closures recommended closure of the PSF. The PSF was transferred to the National Park Service in October 1994 to become part of the Golden Gate National Recreation Area.

3. **REGULATORY STATUS AND DESIGNATION OF DISCHARGERS**

The U.S. Army (hereinafter the Discharger) has conducted investigations and found that both soil and ground water at PSF have been polluted by petroleum hydrocarbons including: gasoline (TPH-g), diesel (TPH-d), and Fuel Oil (TPHf).

4. **TYPE OF ORDER** Site Cleanup Requirements is a special type of administrative cleanup and abatement enforcement order issued by the Board to establish cleanup standards and schedules for investigation and remediation for sites where responsible parties are proceeding cooperatively and proactively to complete necessary tasks. Cease and Desist Orders are documents issued by the Board as enforcement actions either where immediate action is required or where responsible parties have not proceeded in a proactive and expeditious manner to complete tasks associated with investigation and cleanup. Site Cleanup Requirements is the appropriate type of order for this discharge because of positive past performance of the Discharger at proceeding with investigation and cleanup.

5. **SCOPE OF THIS ORDER:**

This Order provides the framework to implement a sitewide soil cleanup and management strategy for petroleum only pollution. **Section 1** of this Order provides sitewide soil cleanup objectives. Additionally, **Section 2** of this Order establishes requirements for the construction, operation and monitoring of a Low Temperature Thermal Desorption Unit (LTTDU) that will treat petroleum polluted soils from sites throughout the PSF. Monitoring objectives for both sections are included in the attached Self-Monitoring Programs (SMPs).

The following documents were used in the construction of this permit including:

- *Fuel Product Action Level Development Report (FPALDR)*, January 1996 ;

This document represents a major effort by the Discharger to implement risk-based corrective actions for releases from USTs, ASTs

and FDS. This document also provides the framework for development of this Order.

- *Basewide Corrective Action Plan, October 1995;*
- *On Site Treatability Study Using Low Temperature Thermal Desorption, May 1995;*

and supplemental addenda on:

- *Fate and Transport Evaluation, November 1995;*
- *Cost Analysis, March 1996;*
- *Ecological Risk Assessment, FPALDR- Section F, January 1996 ;*
- *Beneficial Uses Identification, September 1995.*

6. HYDROGEOLOGIC SETTING

Topography of the PSF is highly variable. The northern boundary along San Francisco Bay is a low flat area developed on fill material. In contrast, the western boundary along the Pacific Ocean is very steep with slopes averaging fifty percent. Baker Beach at the base of the steep slopes is a relatively narrow strip of flat land. The interior portions of the PSF, including the eastern and southern boundaries, are characterized by gently rolling hilly topography. Slopes in the western half of the installation typically average twenty percent. Slopes in the eastern half, where most of the buildings are located, typically average five percent.

Geology:

The Colma Formation is present in the southern and southeastern part of the PSF, where it rests unconformably on the Franciscan formation. The Colma formation consists of fine to medium sand with moderate amounts of silt and clay.

Dune sand forms the surficial deposit throughout most of the southwestern and central portions of the PSF. These deposits consist of highly permeable and uniformly graded sand typically characterized as fine to medium grained.

Slope debris and ravine fill form the surficial deposits in upland areas north and east of the dune sand. These deposits consist of a mixture of sand, silt and clay.

Beach deposits, bay mud, and artificial fill form the surficial deposits along San Francisco Bay and at Baker Beach along the Pacific Ocean. Beach deposits varying

in thickness from twenty to forty feet consist of well sorted medium to coarse sand with some gravel. Bay mud which is interbedded sand, silt and clay with varying amounts of organic matter deposited in low energy, tidal flat environment, has been encountered in the subsurface at some locations at the PSF.

Groundwater and Surface water:

Groundwater at the PSF occurs in unconsolidated aquifers and the Franciscan bedrock formation. The unconsolidated aquifers include beach sand deposits adjacent to San Francisco Bay and the Pacific Ocean; dune sand deposits and Colma Formation in the southwestern and central parts of the Presidio, and fill deposits. In many upland portions of the Presidio, the bedrock has been characterized as relatively impermeable. However groundwater has been noted along the intersection of the bedrock with overlying unconsolidated material. The occurrence of groundwater in bedrock at the Presidio has not been widely studied, and as a result is poorly defined. Along this interface the bedrock is often characterized as weathered or fractured, which results in relatively higher permeability. Sites located within this interface zone would need to be assessed as to whether contaminants are affecting any adjacent unconsolidated aquifers. The width of this interface zone would vary on a site specific basis.

Surface water occurs at the PSF as groundwater recharges to Mountain Lake and Lobos Creek; spring discharge at El Polin Spring, and springs near the Public Health Services Hospital.

The primary controls on the rates and direction of groundwater movement at the PSF are topography and bedrock surface configuration. The water table tends to mirror topographic relief of the PSF. Groundwater generally moves from upland areas in the center of the base to Lobos Creek, Mountain Lake, the Pacific Ocean, and the San Francisco Bay. The generalized flow pattern for unconsolidated deposits in the central portion of the Presidio trends in an eastern direction. Major flow directions north and east of this area are in a northerly direction toward the San Francisco Bay. The flow patterns south and west of this bedrock area are in a southerly direction towards Mountain Lake and Lobos Creek, as well as in a westerly direction towards the Pacific Ocean.

Historical Groundwater Usage:

The potable water supply for the PSF comes from Lobos Creek, ground water wells, or the City of San Francisco water supply. Nearly one hundred percent of Lobos Creek flow, west of Lincoln Boulevard was diverted to the PSF water purification plant near Baker Beach. Additionally, wells located near the purification plant have been used to supplement the Lobos Creek Water supply. Groundwater quality in the Lobos Creek Basin, in general, exceeds Title 22, Drinking Water

Standards.

7. **BASIN PLAN** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

8. **DESIGNATION OF GROUND WATER BENEFICIAL USES:**

Presidio is located in San Francisco Sands Groundwater Basin as defined in the Basin Plan. Beneficial uses of groundwater within this basin include:

- a. Industrial process water supply
- b. Industrial service water supply
- c. Surface water replenishment
- d. Municipal and Domestic Supply

Existing beneficial uses also include protection of surface water beneficial uses due to groundwater discharge/seepage to the Bay and freshwater bodies including Mountain Lake, Lobos Creek and Tennessee Hollow Corridor.

9. **DESIGNATION OF SURFACE WATER BENEFICIAL USES** The surface water bodies in or adjacent to the PSF are Mountain Lake, Lobos Creek, Tennessee Hollow Corridor, Pacific Ocean and the San Francisco Bay. The existing and potential beneficial uses of these water bodies as identified within the Basin Plan and the Ocean Plan include:

- a. Water Contact Recreation
- b. Non-Contact Water Recreation
- c. Preservation of Rare and Endangered Species
- d. Estuarine Habitat
- e. Wildlife habitat
- f. Fish spawning
- g. Saltwater Habitat
- h. Industrial Process Supply
- i. Navigation
- j. Ocean Commercial and Sport Fishing
- k. Fish Migration
- l. Shellfish Harvesting

- m. Freshwater habitat
- n. municipal and domestic supply

10. **Other Board Policy:** Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels.
11. **State Water Board Policies:** State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This Order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended on April 21, 1994.

SECTION 1: *IN SITU* SOIL CLEANUP LEVELS AND MANAGEMENT OBJECTIVES

12. **Presidio Cleanup and Management Strategy** This strategy is based both on surface and ground water quality objectives and risk management. It considers the protection of the human health, the environment, water quality of the surface and ground waters. It also considers long term projected land usage and cost effectiveness of the overall corrective action process.

The following benefits are available utilizing a sitewide cleanup and management strategy:

- Streamlining of regulatory requirements and oversight for both the Discharger and the Regional Board;
- Economies of scale for both the Discharger and Regional Board in the areas of investigation, remediation design and implementation, monitoring, regulation and oversight;

- Level of cleanup effort and priority can match risk level for both the Discharger and the Regional Board

13. **Cleanup Levels:** The cleanup levels are concentrations above which corrective action may be required. To evaluate risk at a fuel site, fuel product action levels were developed that consider protection of the human health, the environment, and the water quality. When more than one cleanup level is applicable for a particular constituent or contamination due to multiple receptor scenarios, the discharger ***will be required to satisfy the most stringent level.*** The flowchart in Figure 3 illustrates how cleanup levels are chosen at a given site. The discharger will remain responsible for any future source removal, containment, management and monitoring of existing and/or remaining polluted soil and groundwater that may be required as a result of changes in land use, applicable requirements or available information. In addition, a long term sitewide monitoring program will be required as part of this Order to determine compliance with the levels set forth herein.

A) SOIL CLEANUP LEVELS FOR PROTECTION OF HUMAN HEALTH (Table 1) A human health risk assessment was performed to identify the risk to persons who may be exposed to soil pollution at the Presidio. These cleanup levels also consider current and future land uses, including those associated with the Park's Master Plan and other construction, operation and maintenance activities at the Presidio. Depending on the location of the site at the PSF, one or more of the following exposure scenarios will apply:

- Recreational
- Residential (except roadways, parking lots, etc.)
- Park Maintenance worker and groundskeepers for the NPS

B) SOIL CLEANUP LEVELS FOR PROTECTION OF ECOLOGICAL RECEPTORS (Table 2) Soil clean-up levels are established herein for the protection of ecological (non-human receptors) found in terrestrial habitats. Soil cleanup levels protective of terrestrial receptors are based on a risk-based approach, with ingestion of soil and contaminated prey being the primary routes of exposure.

Clean-up levels for protection of saltwater aquatic habitat along the San Francisco Bay shoreline and the proposed wetland area in Crissy Field will be developed separately, as described under Task 1 of this Order. Maps of the ecological protection zones are shown in Figures 6 and 7.

C) SOIL CLEANUP LEVELS FOR PROTECTION OF WATER QUALITY OBJECTIVES AS BACKGROUND LEVELS (Table 3) and SOIL CLEANUP LEVELS FOR PROTECTION OF WATER QUALITY OBJECTIVES AS DRINKING WATER STANDARDS (Table 4) The development of these cleanup levels assumes that any non aqueous phase liquid (NAPL) will be removed from the storage facility, fuel line or subsurface. Therefore the cleanup levels for the Presidio, in Tables 3&4, refer to the residual concentrations of fuel constituents that can remain in vadose zone soil without impacting the water beneficial uses at sites where groundwater impact is not currently known to occur.

The Discharger has proposed, and Board staff agree with, a subdivision of the San Francisco Sands Groundwater Basin into Marina Groundwater Basin, Lobos Creek Groundwater Basin and the Coastal Bluffs Groundwater Basin based on geologically controlled groundwater flow. Groundwater areas in unconsolidated soils were further identified within each basin and are shown on Figure 2. Lobos Creek Groundwater Area is identified within the Lobos Creek Groundwater Basin. West Valley Groundwater Area, Northeastern Groundwater area, and Crissy Field Groundwater area are identified within the Marina Groundwater Basin. The following lists the groundwater basins and areas and their respective beneficial uses:

Groundwater Basin/Area	Beneficial Use
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Lobos Creek Basin

Lobos Creek Groundwater Area	Municipal Surface Water Ecological
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Coastal Bluff Basin

	Municipal Recreational Surface Water Ecological
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Marina Groundwater Basin

West Valley Area	Municipal Surface water
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Northeastern Area	Municipal Recreational Surface Water Ecological
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Crissy Field Area

Municipal*
Recreational
Surface water
Ecological

* low probability for future use

In general, soil cleanup levels for protection of groundwater quality in this Order were calculated so as to assure that residual soil pollutants do not cause either background levels or drinking water criteria to be exceeded in groundwater. The one area where this approach is not used is at Crissy Field.

Crissy Field is treated differently because there is a low probability of groundwater being used for municipal supply purposes in the foreseeable future. Although groundwater in certain areas within Crissy Field meets the criteria of this Board's drinking water policy (Board Resolution No. 89-39), the probability of use for such purposes is minimal. Pumping groundwater in those portions of the Crissy Field where artificial fill lie on top of bay mud is likely to cause sea water intrusion and land subsidence, thus limiting the probability of developing these waters for such use. This assessment is based on discussions with the City and County of San Francisco (the water purveyor), the National Park Service and the Discharger regarding potential uses of Crissy Field groundwaters.

This Order requires the Discharger to submit Corrective Action Plans (CAPs) for groundwater impacted sites. Groundwater impacted sites are currently known to exist on Crissy Field at Buildings 637 and 231 and 269. At the time CAPs are reviewed for sites on Crissy Field, the past, present and future probable use of the groundwater will be evaluated along with other factors affecting the selection of appropriate soil and groundwater remediation for these sites. The cleanup levels for soils found within Table 5 of this Order apply only under the pollutant loading scenarios modeled. They do not apply to sites where groundwater has been impacted.

The use of criteria other than drinking water criteria is consistent with Water Code Sections 13241 and 13263 which require the Board to consider factors such as "past, present and probable future beneficial uses of water" when adopting water quality objectives or prescribing site-specific requirements.

14. Cleanup Level Development: The development of soil cleanup objectives for fuel hydrocarbons at the PSF involves a combination of the indicator

chemicals approach and the surrogate compound(s) approach. The indicator compound approach was used to develop cleanup values for specific petroleum constituents that are known to have high toxicity. These include the following monoaromatic hydrocarbons; benzene, toluene, xylenes, a number of polycyclic aromatic hydrocarbons (PAHs), and dioxins. The surrogate compounds approach used surrogate compounds, representative of the aliphatic (e.g. hexane) and aromatic (e.g. naphthalene) fractions of the fuel hydrocarbon types, to develop cleanup levels for the whole hydrocarbon mixtures measured as gasoline (TPHg), diesel (TPHd), and fuel oil (TPHf).

The following is a brief description of the surrogates chosen for the different fuel types:

TPHg: N-hexane for the aliphatic fraction and naphthalene for the aromatic fraction.

TPHd: N-nonane for the aliphatic fraction and naphthalene for the aromatic fraction.

TPHf: N-eicosane for the aliphatic fraction and naphthalene for the aromatic fraction.

- Dioxins/Furans were sporadically detected in samples collected at release points along the FDS. The dioxins/furans are associated with the fuel oil and detected concentrations pose insignificant risk to the public or the environment.

15. Fate and Transport: In order to evaluate the level of pollution (i.e. residual saturation) that could be managed and remediated in place, the Seasonal Soil Model (SESOIL) was used. A one time loading scenario was selected for the modeling effort based on the assumption that any NAPL will be removed, and that any continuing source of hydrocarbon to groundwater will be eliminated. This model evaluates the concentration of leachate as it moves a specified distance from the source soils. The leachate value is then used to calculate a soil cleanup level based upon the equilibrium partitioning of the chemical between the soil and porewater. The hydrocarbon constituents used in the SESOIL modeling include: hexane, nonane, icosane, benzene, ethylbenzene, toluene, naphthalene, and benzo(a)pyrene. These constituents encompass the range in mobility of constituents present in gasoline, diesel, and fuels oils that were contained in the UST and FDS system. Uncertainties in model results are caused by lack of homogeneity of soils, seasonal and tidal fluctuations of groundwater (i.e. varying distances from the groundwater surface and residual soil concentrations in the capillary fringe), multiple loading of the soil system by repeated releases or greater than

expected infiltration.

In addition, a preliminary investigation of pollutant migration and attenuation has been completed by the discharger for known release sites at the PSF. Data indicate that the majority of soil impacted cases are limited with soil pollution extending from 1.5 to 22 feet from the release point. However, as a condition of this Order, a groundwater monitoring program will be required to ensure that the assumptions used in developing soil cleanup values were valid. Board staff expect to re-evaluate this plan as cleanup proceeds. Monitoring requirements are found in *Self Monitoring Program: Section 1*.

Upland areas of the Presidio are located on bedrock, and releases of hydrocarbon fuels in this geologic setting could have allowed hydrocarbons to move through fractures (rather than soil pore spaces) and over greater distances than estimated using the soil water equilibrium model. However, should a release occur in a bedrock area, a site specific evaluation will be conducted to assess how site conditions deviate from the idealized model. The necessity for subsequent remedial action will be evaluated in site specific CAPs.

SECTION 2: LOW TEMPERATURE THERMAL DESORPTION UNIT (LTTDU) - OPERATIONAL OBJECTIVES AND REQUIREMENTS

16. The Discharger has submitted a report to the Board on June 2, 1995, for the design, construction, and operation of a Low Temperature Thermal Desorption Unit to process petroleum contaminated soils at the PSF.
17. The project site is located adjacent to Building 637, along the southern end of Crissy Field near the intersection of Mason and Old Mason Streets. The area available for the soil treatment system is approximately 2.3 acres along Crissy Field on the northern end of the Presidio as shown on Figure 4. Layout detail of the LTTDU is shown in Figure 5. The following sites at the PSF are potential sources of petroleum contaminated soils requiring treatment:
 - USTs,
 - fuel distribution system,
 - above ground storage tanks and,
 - petroleum contaminated soils from spills.

18. Treated soil from this facility will be used for backfill material at remediated UST and AST excavations. The facility is expected to treat up to 10,000 cubic yards from the above mentioned projects. This volume could increase if the process is found to be effective.
19. **PURPOSE** The primary objectives of this Section of the order are to: 1) provide guidance for the discharge of treated soils to comply with current regulations of Chapter 15, Division 3, Title 23 of the California Code of Regulations; and 2) establish requirements for the operation, and monitoring of the LTTDU including waste acceptance criteria (Specification No.15) and minimum treatment standards (Specification No 16). Treated soils will be used as backfill material for closure activities at petroleum impacted sites, roadbase material or tiered, segregated, landfill capping.
20. This order permits the thermal treatment of petroleum contaminated soils only, and explicitly excludes hazardous wastes or petroleum contaminated soils that have commingled with hazardous substances. The facility will use a Low Temperature Thermal Desorption Unit for treatment of petroleum contaminated soils.
21. **WASTES AND THEIR CLASSIFICATION** The discharger proposes to treat the petroleum contaminated soils including leaded and unleaded gasoline, diesel, and fuel oils. No hazardous waste will be accepted for treatment and contaminated soil shall contain no free liquid. Only designated wastes as defined in Chapter 15, CCR will be accepted for treatment.
22. Treated soil discharged from the LTTDU will be classified as inert waste under Section 2524, Chapter 15 as it should not produce leachate with concentrations above water quality objectives. Treated soils must be discharged in conformance with the Specifications and Prohibitions of this Order.
23. **DESIGN OF THERMAL SOIL TREATMENT FACILITY** The LTTDU will be comprised of three primary operational areas as follows:
- A Contaminated Soil Receiving and Storage area;
 - A Low Temperature Thermal Desorption Unit; and
 - Treated \ clean soil stockpile area.
24. The proposed Thermal Treatment Unit is comprised of the components detailed below:
- Feed Conveyor;
 - Surge Hopper

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- Baghouse;
- Thermal Processor (Dryer Drum);
- Dust Suppression Housing and;
- Discharge Conveyor

Feed Conveyor - Soils ready for treatment will be loaded into the hopper which deposits the material onto a conveyor belt system which carries the material to the treatment unit. The conveyor system is equipped with hood covers preventing water and wind from contacting contaminated material. The conveyor will also have belt scrapers to keep clean the belts of loose soil.

Thermal processor (Dryer drum) - Contaminated materials are conveyed into the remediation processor and heated to temperatures that promote volatilization of the hydrocarbons. Contaminated material will be heated to temperatures ranging from 400°F to 800°F and carried through the remediation processor/dryer drum by an inclined drum rotation to the discharge end.

Cyclone - After exiting the remediation processor, airborne constituents (volatilized hydrocarbon compounds and soil particulate) are carried by air stream into the dry cyclone system where large particulates are removed.

Baghouse - Exiting the Thermal processor, these compounds are carried to the baghouse, where particulate matter is removed from the air stream.

Afterburner / catalytic oxidizer - Gases exiting the baghouse are carried by air stream to the oxidizing chamber where the vaporized hydrocarbons are destroyed through oxidation at temperatures usually ranging between 1400°F and 1600°F.

Discharge conveyor - The treated material leaves the Thermal processor and enters the dust suppression housing, where it is cooled by the addition of water, sufficient to control fugitive dust and remoisturize the treated soil.

Stockpiling system - The processed soil is conveyed and stockpiled. Each soil stockpile will be staked with the date and treatment interval while awaiting confirmation results. A composite sample will be collected from this pile to validate the effectiveness of treatment. The soil shall be acceptable for utilization as backfill material (with the placement constraints outlined in Prohibitions, Section 2, 10 and 11) or in an appropriate landfill

after confirmation by a California certified laboratory.

Stockpile Areas - The treatment site will have several separate stockpile areas containing contaminated soils and treated soils. A bermed area lined with 9 mm High Density Polyethylene will be provided for the contaminated stockpile. Three foot high K rails will form the sides of each stockpile area to form a sealed bermed area. An eight inch layer of sand shall be placed over the liner floor as protection against vehicle traffic. Separate, 20 mil, removable covers will be provided for the stockpile for protection from wind and water erosion.

Treated soils will be stockpiled on the apron of the treatment pad and covered with polyethylene at the south and west sides of the site (Figure 5).

25. If there is any uncertainty as to the origin of the soil arriving for treatment, it shall be considered *Mixed source soil* and will not be considered for acceptance.

FINDINGS: BOTH SECTIONS

26. **CONDITION OF POLLUTION OR NUISANCE** The discharger has caused or permitted, and threaten to cause or permit, waste to be discharged or deposited where it is or potentially will be discharged to waters of the State and create or threaten to create a condition of pollution or nuisance.
27. **CEQA Document** A Final General Management Plan Amendment and Environmental Impact Statement of July 1994 was published by the National Park Service for Presidio of San Francisco. Existing and potential water quality Impacts on the groundwater and the surface water were identified. The Discharger will undertake remediation efforts overseen by U.S. EPA, Department of Toxic Substances Control and the Board to mitigate any existing impacts. Current and future land owners will undertake compliance steps, including obtaining any necessary permits, to mitigate any future impacts as a result of implementing the alternative recommended in the General Management Plan.
28. **CEQA EXEMPTION** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency guidelines.

29. **NOTIFICATION OF ORDER AND PUBLIC HEARING** The Regional Board has notified the Dischargers, responsible parties and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and provided them with the opportunity for a public hearing and an opportunity to submit their written comments.
30. **PUBLIC MEETING** The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED pursuant to authority in Section 13304 of the California Water Code, the discharger, its agents, successors and assigns shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS - PERTAINING TO SITE WIDE SOIL AND GROUNDWATER MANAGEMENT *Section 1:*

1. The discharge of wastes in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

PROHIBITIONS - PERTAINING TO WASTE TREATMENT, STORAGE, AND DISCHARGE *Section 2:*

4. Waste acceptable for LTDDU treatment at this facility shall be limited to hydrocarbon contaminated soils including, but not limited to, soils containing leaded and unleaded gasoline, diesel fuel, and fuel oil.
5. Hazardous wastes listed in 40 CFR 261 shall not be accepted at this facility, nor will wastes with excessive heavy metal concentrations pursuant to Section 66261.24(a)(2)(A), Title 22, CCR or wastes defined in Sections 66261.21 through 66261.24, Title 22, CCR or hazardous waste subject to remediation under Health and Safety Code 25300, et. seq. and 42 U.S.C. 9601 et. seq.

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6. Contaminated soil of unknown origin (i.e. no site history, analytical data, throughput records, etc.) shall not be accepted for treatment without supporting analytical data.
7. Contaminated soil shall not be stored in locations other than the Contaminated Soil Storage areas depicted in Figure 5.
8. The receiving and storage of contaminated soil, and on-site discharge of treated soil shall not create a pollution or nuisance as defined in Section 13050(l) and (m) of the California Water Code.
9. The discharger shall not cause the following conditions to exist in waters of the State as a result of on-site soil storage and discharge operations at the PSF:
 - a. Surface Waters
 1. Floating, suspended, or deposited macroscopic particulate matter or foam.
 2. Bottom deposits or aquatic growths.
 3. Alteration of temperature, turbidity, or apparent color beyond natural background levels.
 4. Visible, floating, suspended or deposited oil or other products of petroleum origin.
 5. Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of this unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
 - b. Groundwater
 1. The groundwater shall not be degraded as a result of the LTDDU waste treatment or treated soil disposal operations.

10. Discharges of treated soil must maintain a minimum setback distance of fifty (50) feet from any lake, creek, stream or spring. Soils containing PAHs may be discharged to levels prescribed within Tables 1-5 except within the Crissy Field saltwater aquatic protection zone outlined in Figures 6 and 7. PAH cleanup levels for the saltwater aquatic protection zone will be developed following completion of Task 1 of this Order. These Cleanup levels will then be enforced under this Order. Within the Freshwater Aquatic protection zone there shall be no discharge of detectable petroleum hydrocarbons and petroleum constituents or discharge at levels that are protective of freshwater habitat.
11. The top 18" of each excavation will be backfilled exclusively with soils with ***no detectable concentrations (i.e. non detect as defined by PQLs for the analytical method specified) of fuel constituents.*** The source of these soils may be clean fill, excavated soils or treated soils.

B. SPECIFICATIONS - PERTAINING TO SITE WIDE SOIL AND GROUNDWATER MANAGEMENT *Section 1:*

1. Investigation, Remediation, and Monitoring Activities: The Discharger shall conduct site investigation, remediation and monitoring activities as needed to define the current hydrogeologic conditions, to define the lateral and vertical extent of soil pollution on-site, to define the lateral and vertical extent of ground water pollution on or emanating from their individual sites, to remediate as may be required any soil pollution on-site, and remediate as may be required any ground water pollution on or emanating from their site(s). Should monitoring results show evidence of pollutant migration, the source of which is the Site, additional characterization and remediation may be required.

Nuisance: The storage, handling, treatment or disposal of soil or ground water containing pollutants shall not create a nuisance as defined in Section 13050(l) and (m) of the California Water Code.
2. Soil and Ground Water Cleanup Levels Cleanup standards for soil are established in Tables 1-5 of this Order. In the event a discharge is located within an area between two groundwater basins/areas where cleanup levels from either area might be considered to apply, the Discharger must comply with the standards for all areas in which they are located for each individual constituent. Consultation with Regional

Board staff is required in groundwater areas where groundwater areas or Basins overlap or it is unclear which cleanup level(s) would apply. The Discharger shall compare the standards for these areas in which they are located for each pollutant and then use the most stringent value as the cleanup objective as outlined in Figure 3.

The discharger must actively remediate all contaminated soils to meet all cleanup levels. Cleanup levels in soil for groundwater impacted sites (Buildings 231, 637 and 269) on Crissy Field will be established after review of Corrective Action Plans for those sites under Provision C.6.

SPECIFICATIONS - PERTAINING TO WASTE STORAGE, TREATMENT AND DISCHARGE: *Section 2*

3. Water used during thermal treatment process and discharge operations shall be limited to the minimal amount necessary for construction, dust control, and fire suppression.
4. The LTTDU site shall be protected from any washout or erosion of wastes or covering material and from inundation which could occur as a result of a 25 year, 24-hour precipitation event, and shall be sited above the 100-year recurrence flood level.
5. The lined contaminated soil storage facilities shall be covered as proposed with UV stabilized polyethylene to prevent the infiltration of any water into the bermed soil stockpiles. Any ponded water that comes in contact with the contaminated soils shall be pumped out immediately and managed as liquid waste.
6. A baseline soil sampling report, of soils beneath the LTTDU, shall be submitted prior to start-up of the treatment system.
7. The operators shall remove and relocate and properly dispose untreated waste streams which are in violation of these requirements.
8. Any untreated waste removed from the site for disposal shall be disposed of only at a permitted disposal site. Any untreated waste transported from the site shall not be permitted to leak or otherwise escape to the ground or to a water course in route to the disposal site. For the purposes of these requirements, a permitted site is one for

which requirements have been adopted by a Regional Water Quality Control Board and which is in full compliance therewith.

9. Storm water runoff shall be diverted around the treatment site. In regard to storm sewers, proper housekeeping practices must be employed to prevent silt, grit or oil from entering the storm sewer system.
10. The discharger shall operate the treatment facility so as not to cause exceedances of background water quality as a result of operation of the LTTDU and discharge of thermally treated soils.
11. The discharger shall install any reasonable additional groundwater and leachate monitoring devices required to fulfill the terms of any Self Monitoring Program issued by the Executive officer.
12. The discharger shall maintain all devices or designed features, installed in accordance with this order such that they continue to operate as intended without interruption.
13. The Regional Board shall be notified immediately of any failure occurring in the LTTDU. Any failure which threatens the integrity of containment features of the LTTDU shall be promptly corrected after approval of the method and schedule by the Executive officer.
14. Treated soil may be used as backfill material for the closure of UST, AST, and FDS excavations. Backfill below the top 18" of each excavation shall not contain fuel constituents in excess of treatment standards in Specification 16.
15. Soil Acceptance: The discharger is required to certify that the incoming material fits into one of two categories: 1) *Petroleum Only Soils* - originating from leaking underground storage tanks, above ground tanks, the FDS system or surface spills or 2) *Mixed Source Soils* - originating from non-petroleum sites, (e.g. chlorinated solvents). Soils falling into the later category will not be remediated by this process. These sites will be identified prior to excavation. All incoming waste soils are required to provide the following prior to acceptance of material for treatment:

- Source location with a site history documenting

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- contaminant sources are petroleum only; or
- Analytical data which shows that the waste soil is non-hazardous and of petroleum origin

Acceptance Standards: The following additional acceptance analyses shall be performed in areas of suspected commingled pollution (e.g solvents and fuel sites) or previously unknown site(s) to document that the soil is non-hazardous:

Before Treatment Sampling/Analysis (Areas of commingled or unknown sites):

- Benzene
- Ignitability
- Toxicity (LC₅₀)
- pH
- Lead (gasoline sites only)
- PCBs/ Pesticides
- Dioxins/Furans

After Treatment Sampling/Analysis (All soils) :

- Polycyclic Aromatic Hydrocarbons (PAHs) by immunoassay with 10% laboratory verification
- Gasoline *
- Diesel *
- BTEX *

* Extracted by Synthetic Precipitation Leaching Procedure (EPA Method 1312)

Treated soils shall be sampled to confirm soil treatment to levels stated in Specification No. 16.

16. Treatment Standards: Treated soil from the Thermal Treatment Unit shall be confirmed treated to the following levels for organic compounds by immunoassay analysis with ten percent (10%) California certified laboratory verification:

Parameter	Method	Acceptance limit
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TPH	8015 (modified for gas, diesel or fuel oil)	100	mg/kg
Benzene	8020	0.005	mg/kg
Toluene	8020	0.005	mg/kg
Ethylbenzene	8020	0.005	mg/kg
Xylenes	8020	0.005	mg/kg

Treated soil that does not meet these acceptance limits shall be returned to the soil receiving and handling area for retreatment. Treated soil meeting acceptance limits may then be used as structural (roadbase, foundations etc.) or non-structural fill to backfill excavations provided it meets the aforementioned goals and discharge locations subject to approval by the Executive Officer.

17. Soil Receiving and Storage Area: The Contaminated Soil Receiving and Storage area shall include the following components:
 - The Soil Receiving area (bermed soil stockpiles) shall use the existing asphalt surface overlain by a 9 mm High Density Polyethylene Liner with 8" of sand on top of the liner.
 - A 20 mm, UV-stabilized, reinforced, polyethylene tarpaulin shall be maintained over soil stockpiles. Ponded water shall be diverted to existing sanitary sewer lines.
 - Treatment of soils during wet weather from October 1 to April 1 is subject to approval of wet weather Best Management Practices by the Executive Officer during the first year and successful implementation thereafter.
18. Monitoring requirements for the LTDDU are specified in the **Self-Monitoring Program: Part 2**.
19. The discharger shall maintain all waste acceptance data at the facility and allow Regional Board staff access during routine inspections.

C. PROVISIONS - PERTAINING TO SITEWIDE SOIL AND GROUNDWATER MANAGEMENT *Section 1:*

The Discharger shall comply immediately with the Prohibitions and Specifications above with the exceptions as follows:

TASK 1: Submit a workplan acceptable to the Executive Officer for developing soil clean-up levels in areas where fuel-contaminated soils could, potentially, adversely impact marine and estuarine organisms

DUE DATE: August 1, 1996

Description: Adverse ecological impacts to marine habitats could, potentially, result from the migration of polluted groundwater into shoreline areas, or from direct exposure of marine organisms to contaminated soils in future, created marine wetland areas.

The discharger will submit a workplan, acceptable to the Executive Officer , for determining TPH levels in soils that will protect marine habitats at the Presidio from adverse effects. The workplan will include the following:

a. A description of methods for performing aquatic toxicity tests on soil elutriates, using marine species as indicators of potential effects.

The aquatic tests will be performed by a California certified laboratory, according to protocols acceptable to the Executive Officer. The tests shall involve a series of dilutions of soil elutriates to determine a variety of statistical endpoints, including the No Observed Effect Concentration (NOEC), Lowest Observed Effect Concentration (LOEC), EC_{50} , EC_{25} , EC_{10} , EC_5 , and EC_0 . The workplan shall specify organisms to be used and interpretation of range finding tests, reference toxicant tests, and control samples. In addition, the workplan shall specify water quality parameters, including ammonia, that will be monitored during toxicity testing.

Separate toxicity tests shall be performed on soils contaminated by diesel, gasoline, and fuel oils. In addition, for diesel and gasoline contaminated soils, tests will be performed on a least two different contaminated soil samples in order to characterize the toxicity of young vs. weathered fuels. Soils may be selected for toxicity testing based on the results of chemical screening to determine the relative proportion of total PAHs in the fuel mixture.

b. A description of chemical analyses that will be performed on soil samples and toxicity test solutions.

Methods for screening soil samples for concentrations of fuel constituents and total TPH shall be specified. These tests will be used to select soil samples for toxicity testing.

In addition, chemical analyses to determine the concentrations of TPH (8015 Modified) and constituent PAHs (GC/MS) in both soil and soil elutriate samples used for toxicity testing will be performed.

c. A proposal for using results of the toxicity tests and chemical analyses for determining soil clean-up levels.

This proposal should at a minimum discuss the use of toxicity endpoints and fate and transport modeling to back calculate protective soil concentrations from the results of aquatic (sediment elutriate) toxicity tests.

TASK 2: Submit a report, acceptable to the Executive Officer, which details the results of the work carried out under the workplan described under TASK 1, above.

DUE DATE: March 1, 1997

Description: The report will at a minimum summarize the statistical endpoints for toxicity tests, and include print-outs of statistical tests, as well as raw laboratory bench sheets. The report shall also summarize the results of interim chemical analyses and include a certified laboratory report.

The report shall also at a minimum contain an evaluation of the test results, as well as recommendations for fuel clean-up levels, based upon the results of the toxicity tests and chemical analyses.

2. **Submit a time schedule**, acceptable to the Executive Officer, which includes major milestones for investigation and timely remediation of USTs, ASTs and FDS by groundwater basins and areas. The remediation schedule must propose actions so that removal or remediation to soils to meet cleanup levels is completed in the most practical timeframe. Upon approval by the Executive Officer, the time

schedule and subsequent updates will become part of this Order.

DUE DATE: September 1, 1996

3. **ON A QUARTERLY BASIS** for the basewide program, the Discharger shall submit status reports, which may be prepared in a business letter format, documenting compliance with this Order commencing on **July 15, 1996**. Thereafter, reports shall be due **quarterly** on the 15th of each ensuing July, October, January, and April. Each quarterly report shall cover the previous calendar quarter and include at least the following information:
 - a. Summary of the work completed since submittal of the previous report, and work projected to be completed before the submittal of the next report.
 - b. Identification of any obstacles which may threaten compliance with this Order, and what actions are being taken to overcome these obstacles.
4. **ADDITIONALLY, ON A QUARTERLY BASIS**, technical reports documenting quarterly ground water monitoring shall be submitted by the Discharger to the Regional Board commencing **July 15, 1996**, and covering the previous calendar quarter. Each quarterly monitoring report shall include, but not be limited to, the following information:
 - c. Cumulative tabulated results of total petroleum hydrocarbons and water quality sampling analyses for all hydropunch and monitoring wells both on and related off-site. This data shall be accompanied by pollutant isoconcentration plume maps for each chemical constituent of concern for the first water bearing formations based upon the results of the recent sampling event.
 - d. A cumulative tabulation of all new or previously unpublished information on well construction details including screen intervals, screen lengths, well installation dates, quarterly water level measurements, and cumulative chemical concentrations for each well.

- e. Updated water table and piezometric surface maps, based upon the most recent water level measurements for all affected water bearing zones for all on-site and related off-site wells. Due to the large number of monitoring wells, the Discharger will be allowed to stagger collection of water level measurements and samples by groundwater area, throughout the quarter. This basewide groundwater monitoring plan with staggered water level measurements and sampling must first be approved by the Executive Officer before implementation.
 - f. Reference diagrams and maps including the hydrogeologic conditions of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells, or points and identifying facilities and structures.
5. The Discharger may submit proposals for lead clean-up values higher than 50 mg/kg for approval by the Executive Officer. The proposals may be for individual sites or groups of sites with similar soil types, soil characteristics, or terrestrial receptors and exposure pathways. Proposals for higher clean-up values must be based on specific, technical information. The following types of information could be used to support the Discharger's proposals: a) soil background concentrations, b) soil characteristics such as pH or organic content that affect lead bioavailability to terrestrial plants, c) bioassay data or other evidence that the terrestrial plants at the site or site grouping will not be adversely affected by higher lead concentrations, d) documentation that re-use plans for the site do not necessitate protection of terrestrial plants, e) evidence that excavation to 50 mg/kg would disrupt sensitive habitat for receptors with higher ecological value than those protected by the lead clean-up value.
6. **On a Five Year Basis**, submit a report which describes the probability or improbability of potential groundwater development based on current site ownership. This may be submitted as a portion within other required documents (i.e. CERCLA five year review)

DUE DATE: May 15, 2001

7. A letter of discovery of the release submitted within 6 months with a timeframe for the Corrective Action Plan acceptable to the Executive Officer.

The Discharger shall submit Corrective Action Plan(s), acceptable to the Executive Officer for groundwater impacted sites. The Corrective Action Plan shall evaluate remedial alternatives for soil and groundwater which include but not be limited to no action, source removal with supplemental environmental projects, cleanup to appropriate water quality objectives, and cleanup to background. The Corrective Action Plan(s) shall recommend the preferred alternative with rationale and a schedule for implementation.

8. The Discharger shall request closure certification from the Executive Officer for USTs, ASTs and FDS following completion of any necessary corrective actions. The request shall be accompanied with case closure summary in a format acceptable to the Executive Officer. For soil impacted sites, the case closure summary shall include confirmation sampling results to demonstrate compliance with the soil cleanup levels prescribed in this Order. For groundwater impacted sites, the case closure summary shall demonstrate satisfactory completion of the preferred corrective action alternative.

PROVISIONS: PERTAINING TO WASTE STORAGE, TREATMENT AND DISCHARGE:

Section 2

- 9/8. The Discharger shall comply immediately with all prohibitions, specifications and provisions with the following exceptions:

The discharger shall submit a Contingency Plan acceptable to the Executive Officer. This Plan shall be implemented in the event of a leak or spill from the treatment operations. The discharger shall give immediate notification to the San Francisco Bay Regional Water Quality Control Board. The discharger shall initiate its contingency plan to stop and contain the migration of pollutants from the site.

REPORT DUE DATE: Within 7 days prior to startup

- 10/9. **ON A QUARTERLY BASIS**, the Dischargers shall submit status reports,

which may be prepared in a business letter format, documenting compliance with this Order commencing on **July 15, 1996**.

Thereafter, reports shall be due **quarterly** on the 15th of each ensuing July, October, January, and April. Each quarterly report shall cover the previous calendar quarter and include at least the following information:

- a. Summary of the work completed since submittal of the previous report, and work projected to be completed before the submittal of the next report.
 - b. Identification of any obstacles which may threaten compliance with this Order, and what actions are being taken to overcome these obstacles.
11. The discharger shall submit Final Construction Details acceptable to the Executive Officer pursuant to the specifications of this Order. These details can be provided to the Board as follows:
- a. Vendor technical information for the LTTDU, including engineering drawings and design data for the soil feed system, thermal processor, gas treatment system and the discharge system. Since the LTTDU is a mobile system, the vendor information may be submitted in advance of actual mobilization of the site.
 - b. As built drawings showing the details of construction for the soil storage areas, including runoff and infiltration control features, stockpile covers, and berm/liner system for contaminated soils.

REPORT DUE DATE: A Certification Letter will be submitted to the Executive Officer for approval at the completion of construction of the soil storage areas and selection of a vendor to provide the mobile treatment unit. This letter will certify that the vendor unit was selected and the soil storage areas were constructed in compliance with this Order. This certification letter must be received by the Board seven (7) days prior to start up of the facility operations. The Executive Officer upon satisfactory submittal then provide conditional approval for start up and operation of the LTTDU, contingent on the discharger meeting the conditions detailed in Provisions 9, 11.a and 11.b.

PROVISIONS: BOTH SECTIONS:

12. **ON AN ANNUAL BASIS**, technical reports on the progress of compliance with all requirements of this Order. The first annual compliance report is due **January 31, 1997**, and would cover the previous calendar years activities. Annual reports may include quarterly reports due concurrently.

DUE DATE: JANUARY 31, 1997

- a. The annual progress reports shall include, but not necessarily be limited to, progress on site investigation and remediation activities and an evaluation of the feasibility of meeting the ground water and soil cleanup goals established by this Order.
 - b. For the LTTDU system this shall include information presented in the Discharger's proposed soil tracking system:
 - sampling information results (before and after treatment)
 - approximate volume treated
 - approximate volume discharged on-site
 - location of discharge and purpose
 - approximate volume of off-site disposal and location
 - origin of the soil
 - dates of storage and treatment
13. The discharger may, by written request, seek modifications or revisions, or termination of this Order or any program, plan, or schedule submitted pursuant to this Order at any time. This Order and any applicable program, plan, or schedule may be modified, terminated, or revised by the Regional Board.
14. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer. If, for any reason, the discharger is unable to perform any activity or submit any document within the time required under this Order, the discharger may make a written request for a specified extension of time. The extension request shall include justification for the delay, and shall be submitted to the Regional Board in advance of the date on which the activity is

to be performed or the document is due. The Regional Board staff may propose an amendment to the Order and bring the matter to the Board for consideration.

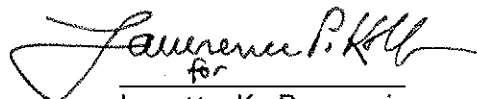
15. All hydrogeological plans, specifications, technical reports and documents shall be signed by or stamped with the seal of a State registered geologist, registered civil engineer, or certified engineering geologist.
16. All laboratory verification samples shall be analyzed by a State certified laboratory or laboratory accepted by the Regional Board using approved EPA methods for the type of analysis to be performed. All laboratories or the consultant shall be required to maintain quality assurance/quality control records for Regional Board review.
17. The discharger shall maintain in good working order, and operate in the normal standard of care, any facility, control or management system to achieve compliance with the requirements of this Order.
18. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order shall be provided to the following agencies:
City and County of San Francisco
Department of Toxic Substances Control
National Parks Service
19. To the extent a discharger has any ownership or present possessory interest in or to the Site, such Discharger shall file a report in a timely manner on any changes in Site occupancy and ownership associated with the facility/property described in this Order.
20. If in performing any work pursuant to this Order, any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any waters of the State, the discharger shall report such a discharge to this Board, at (510) 286-1255 on weekdays during office hours from 8:00 a.m. to 5:00 p.m., and the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be filed with the Board within five (5) working days and shall contain information relative to: the nature of the waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention,

Site Cleanup Requirements
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Control and Countermeasure Plan in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons notified.

21. The discharger shall file with the Regional Board Self Monitoring Reports performed according to any Self Monitoring Program issued by the Executive Officer.
22. The discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of the LTTDU storage areas.
23. The discharger shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.
24. This Board considers the discharger to have continuing responsibility for correcting any problems which arise in the future as a result of this soil treatment or related discharge operations.
25. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws; and do not authorize the discharge of wastes without appropriate permits from other agencies or organizations.
26. This Order is subject to Board review and updating, as necessary, to comply with changing State and Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 15, 1996.


for
Loretta K. Barsamian
Executive Officer

Site Cleanup Requirements
Presidio of San Francisco

Table 1: Soil Cleanup Levels for the Protection of Human Health

Table 2: Soil Cleanup Levels for the Protection of Ecological Receptors

Table 3: Soil Cleanup Levels for the Protection of Water Quality at Detectable Levels

Table 4: Soil Cleanup Levels for the Protection of Water Quality at Drinking Water Standards

Table 5: Soil Cleanup for Crissy Field

Figure 1: Location Map/ Site Map

Figure 2: Groundwater Basin and Groundwater Area Map

Figure 3: Petroleum Cleanup Flowchart

Figure 4: LTTDU location Map

Figure 5: LTTDU Layout

Figure 6: Saltwater Protection and Freshwater Protection Zones

Figure 7: Saltwater Protection and Freshwater Protection Zones Detail map

Appendix A: Self Monitoring Programs Section 1 and Section 2

TABLES

Site Cleanup Requirements
Presidio of San Francisco

TABLE 1: SOIL CLEANUP LEVELS FOR THE PROTECTION OF HUMAN HEALTH

Chemical	Residential* (mg/kg)	Park** maintenance (mg/kg)	Recreational*** (mg/kg)
Gasoline ^a	1,030 ^b	5,900 ^c	2,400 ^b
Diesel ^a	1,380 ^c	6,700 ^c	3,200 ^c
Fuel Oil ^a	1,900 ^c	9,400 ^c	4,500 ^c
Benzene	0.6	5.0	1.5
Toluene	530	12,800	1,200
Ethylbenzene	840	6,600	1,900
Xylenes	1,080	109,000	2,500
<i>Total Carcinogenic PAHs^d</i>	5.6	19.7	13.0
<i>Noncarcinogenic PAHs</i>			
Anthracene	5,900	17,800	13,800
Benzo(g,h,i) perylene	620	1,700	1,400
Flouranthene	820	2,300	1,900
Fluorene	770	2,300	1,800
Napthalene	480	2,300	1,100
Phenanthrene	600	1,700	1,400
Pyrene	620	1,700	1,400
<i>Other</i>			
Dioxins	4.1x10 ⁻⁶	1.6x10 ⁻⁵	1.0x10 ⁻⁵
Lead	TBD	TBD	TBD

^a TPH quantified using USEPA modified method 8015

^b Based on n-hexane as a surrogate compound

^c Based on Napthalene as a surrogate compound

^d Carcinogenic PAHs calculated as a compilation of the following:

Benzo(a)pyrene	0.04	0.15	0.1
Benzo(b)flouranthene	0.43	1.5	1.0
Benzo(k)flouranthene	0.43	1.5	1.0
Benzo(a)anthracene	0.43	1.5	1.0
Chrysene	4.3	15	10

* Fuel constituents present at < 10 feet below ground surface

** Action level based on Park Maintenance worker/ groundskeeper

*** Fuel constituents present at < 2 feet below ground surface

Site Cleanup Requirements
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TABLE 2: SOIL CLEANUP LEVELS FOR THE PROTECTION OF ECOLOGICAL RECEPTORS

Chemical	Terrestrial Receptors (mg/kg)	Saltwater Aquatic Receptors (mg/kg)
Gasoline	610	TBD
Diesel	700	TBD
Fuel Oil	980	TBD
Benzene	40	TBD
Toluene	270	TBD
Ethyl- Benzene	125	TBD
Xylenes	55	TBD
Benzo(a)pyrene	0.3	TBD
Total PAHs	---	TBD
Lead*	50	TBD

* This value only applies to cleanup of leaded gasoline releases and not releases from any other sources. The Discharger may propose an alternative cleanup level pursuant to Provision 5 of this Order.

TABLE 3: SOIL CLEANUP LEVELS FOR THE PROTECTION OF WATER QUALITY AT DETECTABLE LEVELS^a

Chemical	Soil Cleanup level ^a (> 5 feet above the highest groundwater) (mg/kg)	Soil Cleanup level ^b (< 5 feet above the highest groundwater) (mg/kg)
Gasoline	5,000	7
Diesel	15,000	7
Fuel Oil	15,000	10
Benzene	140	0.005
Toluene	420	0.005
Ethylbenzene	60	0.009
Xylenes	180	0.009
<i>Carcinogenic PAHs</i>		
Benzo(a)pyrene	NA	0.8
Benzo(b)fluoranthene	NA	0.6
Benzo(k)fluoranthene	NA	0.6
Benzo(a)anthracene	NA	0.2
Chrysene	NA	0.3
Total PAHs	----	2.5
<i>Noncarcinogenic PAHs</i>		
Anthracene	NA	0.05
Benzo(g,h,i)perylene	NA	2
Fluoranthene	NA	0.05
Fluorene	NA	0.05
Napthalene	NA	0.05
Phenanthrene	NA	0.05
Pyrene	NA	0.09
Other		
Dioxins	NA	8.4x10 ⁻⁵

as Tetrachlorodibenzo-p-dioxin equivalents

^a Soil cleanup levels are based on residual saturation

^b Soil Cleanup levels are based on Lobos Creek Groundwater Basin detectable levels

(PQLs), with $C_{\text{soil}} = K_d C_{\text{water}}$, where $K_d = 130$ for TPH. This Table applies to soils located within the Lobos Creek Groundwater Basin.

TABLE 4: SOIL CLEANUP LEVELS FOR THE PROTECTION OF WATER QUALITY AT DRINKING WATER STANDARDS

Chemical	Soil Cleanup level ^a (> 5 feet above the highest groundwater) (mg/kg)	Soil Cleanup level ^b (< 5 feet above the highest groundwater) (mg/kg)
Gasoline	5,000	100
Diesel	15,000	115
Fuel Oil	15,000	160
Benzene	140	0.005
Toluene	420	1
Ethylbenzene	60	13
Xylenes	180	33
<i>Carcinogenic PAHs^c</i>	NA	111
<i>Noncarcinogenic PAHs</i>		
Anthracene	NA	308
Benzo(g,h,i)perylene	NA	5,040
Flouranthene	NA	316
Fluorene	NA	60
Napthalene	NA	9
Phenanthrene	NA	86
Pyrene	NA	241
Other		
Dioxins	NA	0.0006
(as Tetrachlorodibenzo-p-dioxin equivalents)		
^a Soil cleanup levels are based on residual saturation		
^b Soil Cleanup levels are based on water quality goals for Coastal Bluff Groundwater Basin, Northeastern Groundwater Area, and West Valley Area; water quality goals are MCLs or risk based drinking water standards. $C_{soil} = K_d C_{water}$, where $K_d = 130$ for TPH.		
^c <i>Carcinogenic PAHs</i>		
Benzo(a)pyrene	NA	3
Benzo(b)flouranthene	NA	23
Benzo(k)flouranthene	NA	23
Benzo(a)anthracene	NA	8
Chrysene	NA	54
Total PAHs	NA	111

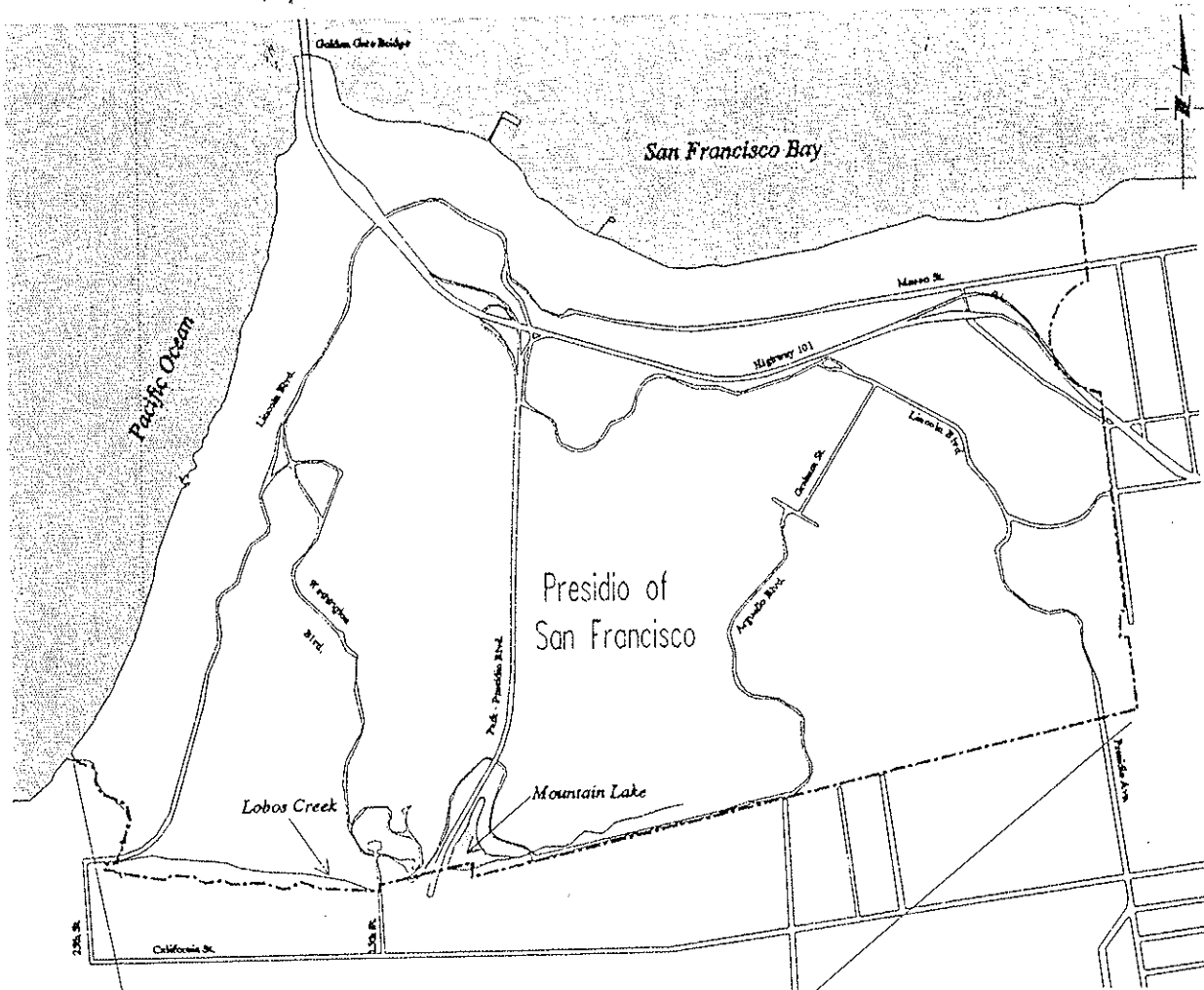
This Table applies to soils located within the Coastal Bluff Groundwater Basin, the Northeastern Groundwater Area, and the West Valley Groundwater Area

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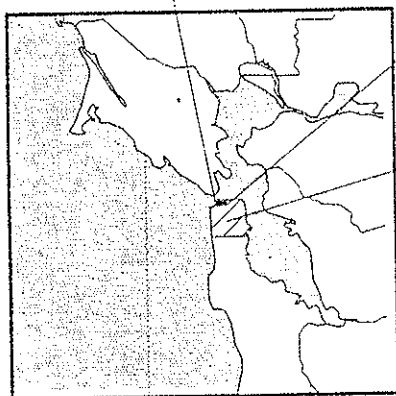
TABLE 5: SOIL CLEANUP LEVELS FOR CRISSY FIELD

Chemical	Soil Cleanup level ^a (> 5 feet above the highest groundwater) (mg/kg)	Soil Cleanup level ^b (< 5 feet above the highest groundwater) (mg/kg)
Gasoline	5,000	1,690
Diesel	15,000	1,950
Fuel Oil	15,000	2,730
Benzene	140	1
Toluene	420	14
Ethylbenzene	60	19
Xylenes	180	4340
<i>Carcinogenic PAHs</i> ^c	NA	253
<i>Noncarcinogenic PAHs</i>		
Anthracene	NA	1,120
Benzo(g,h,i)perylene	NA	19,500
Flouranthene	NA	1,160
Fluorene	NA	220
Napthalene	NA	140
Phenanthrene	NA	410
Pyrene	NA	910
<i>Other</i>		
Dioxins	NA	0.0008
as Tetrachlorodibenzo-p-dioxin equivalents		
^a Soil cleanup levels are based on residual saturation		
^b Soil Cleanup levels are risk-based for protection of park maintenance worker.		
$C_{soil} = K_d C_{water}$, where $K_d = 130$ for TPH		
^c <i>Carcinogenic PAHs</i>		
Benzo(a)pyrene	NA	9
Benzo(b)flouranthene	NA	64
Benzo(k)flouranthene	NA	64
Benzo(a)anthracene	NA	23
Chrysene	NA	151
Total PAHs	NA	253

FIGURES



----- Presidio of San Francisco Base Boundary



City and County of San Francisco



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Figure 1: Site/ Location Map

San Francisco Bay Area
Not Drawn To Scale

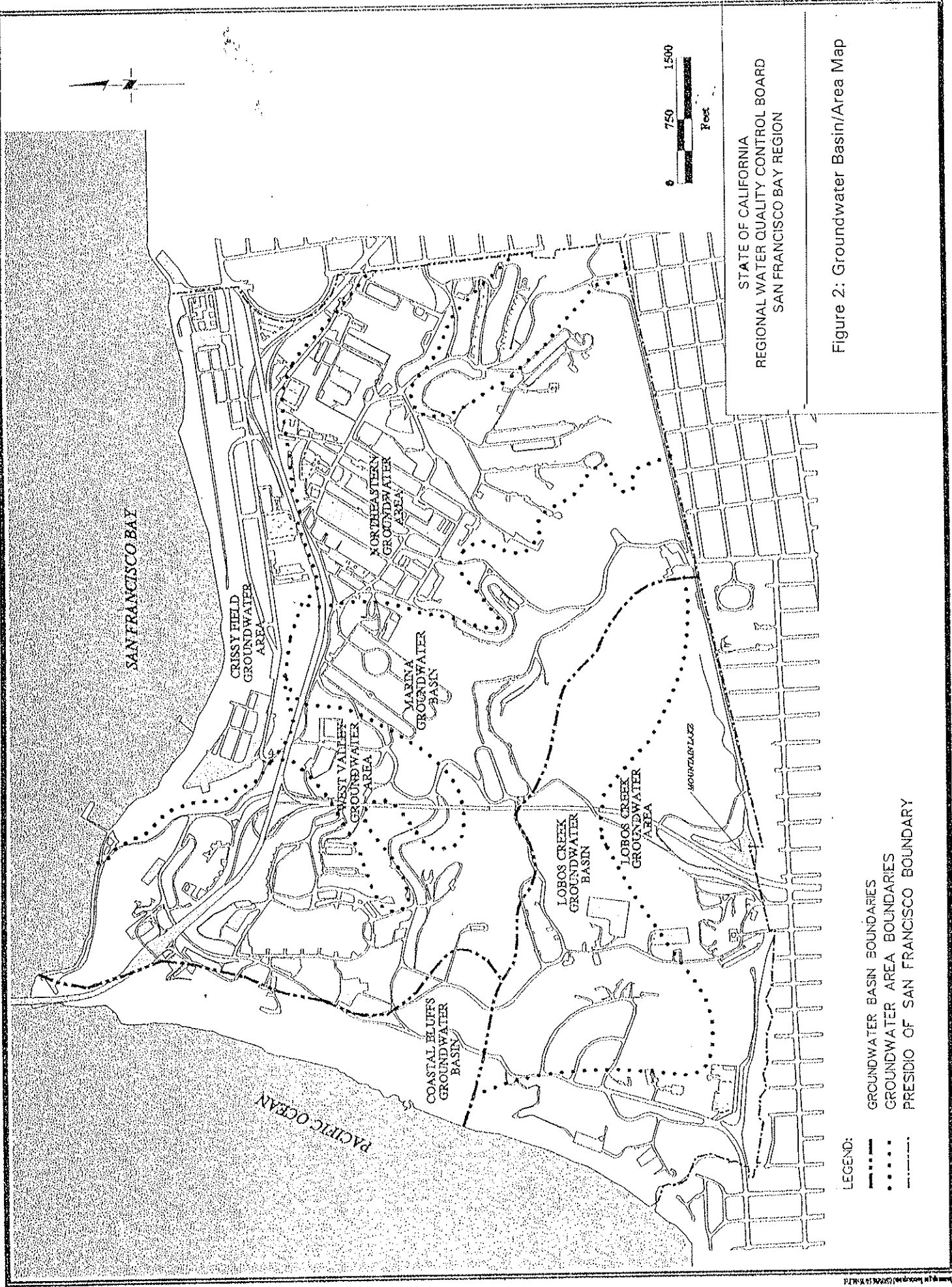
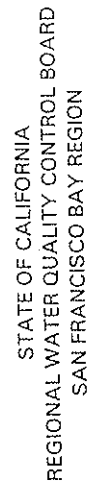
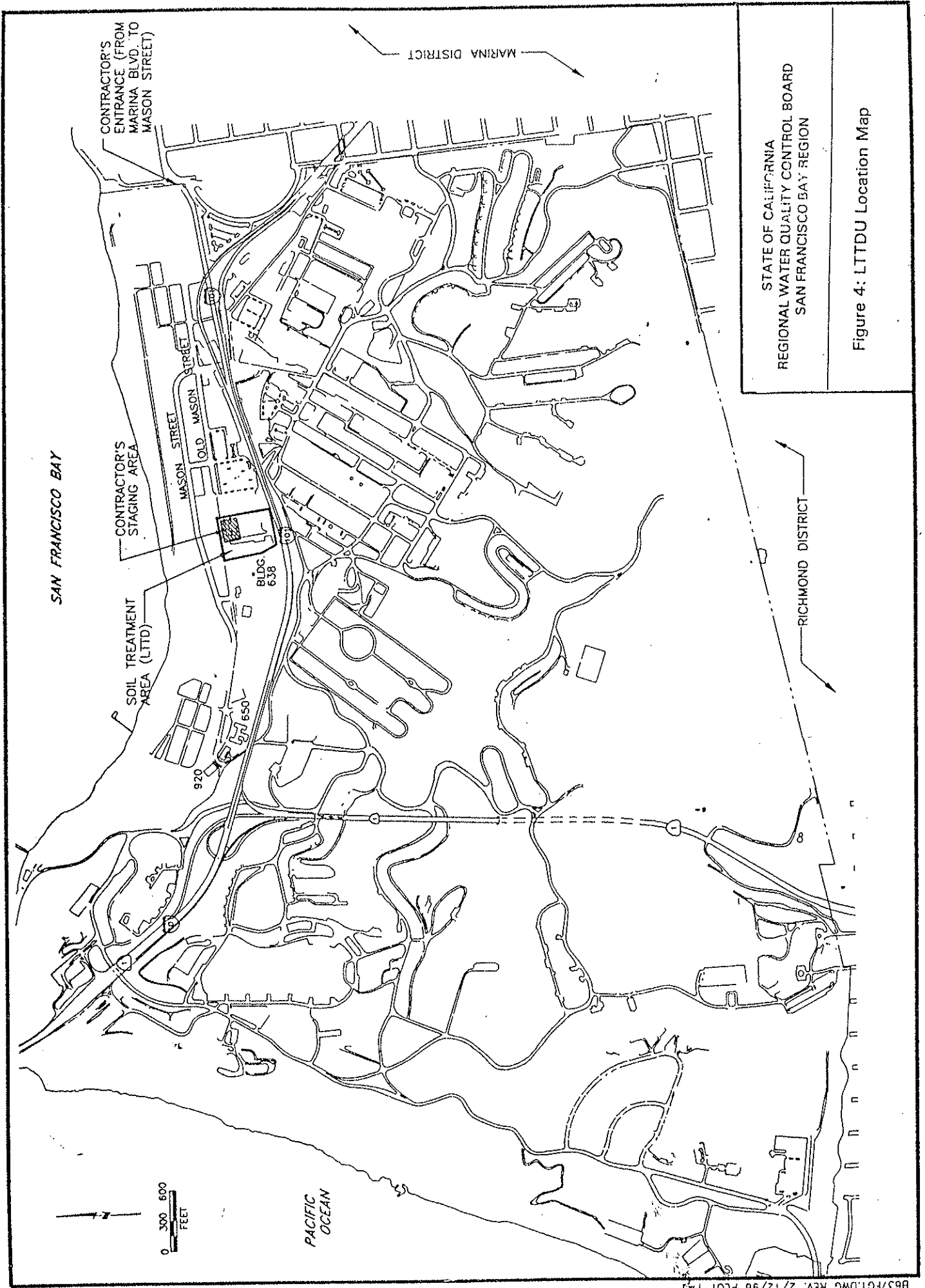


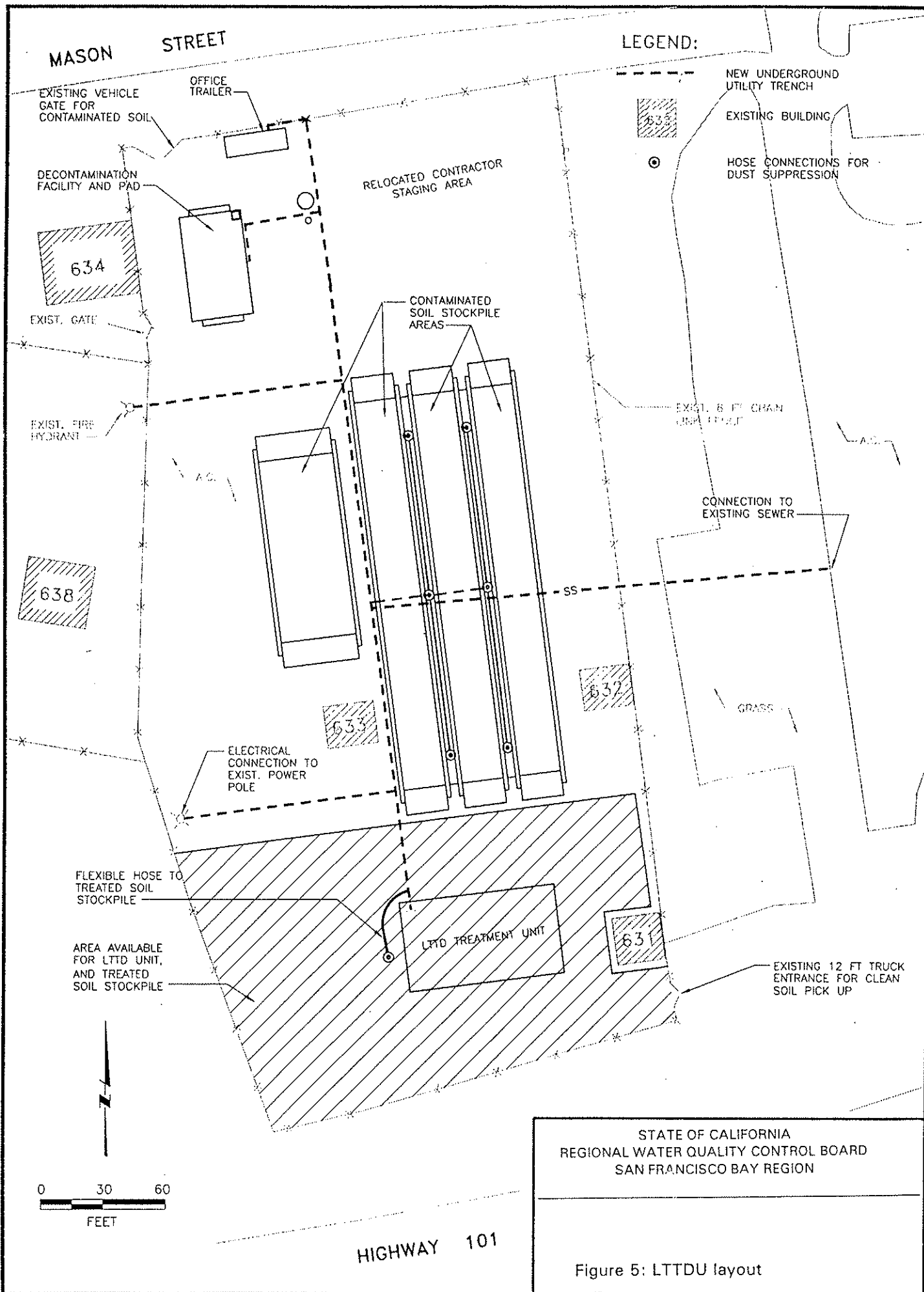
Figure 2: Groundwater Basin/Area Map



RVFS: Remedial Investigation / Feasibility Study

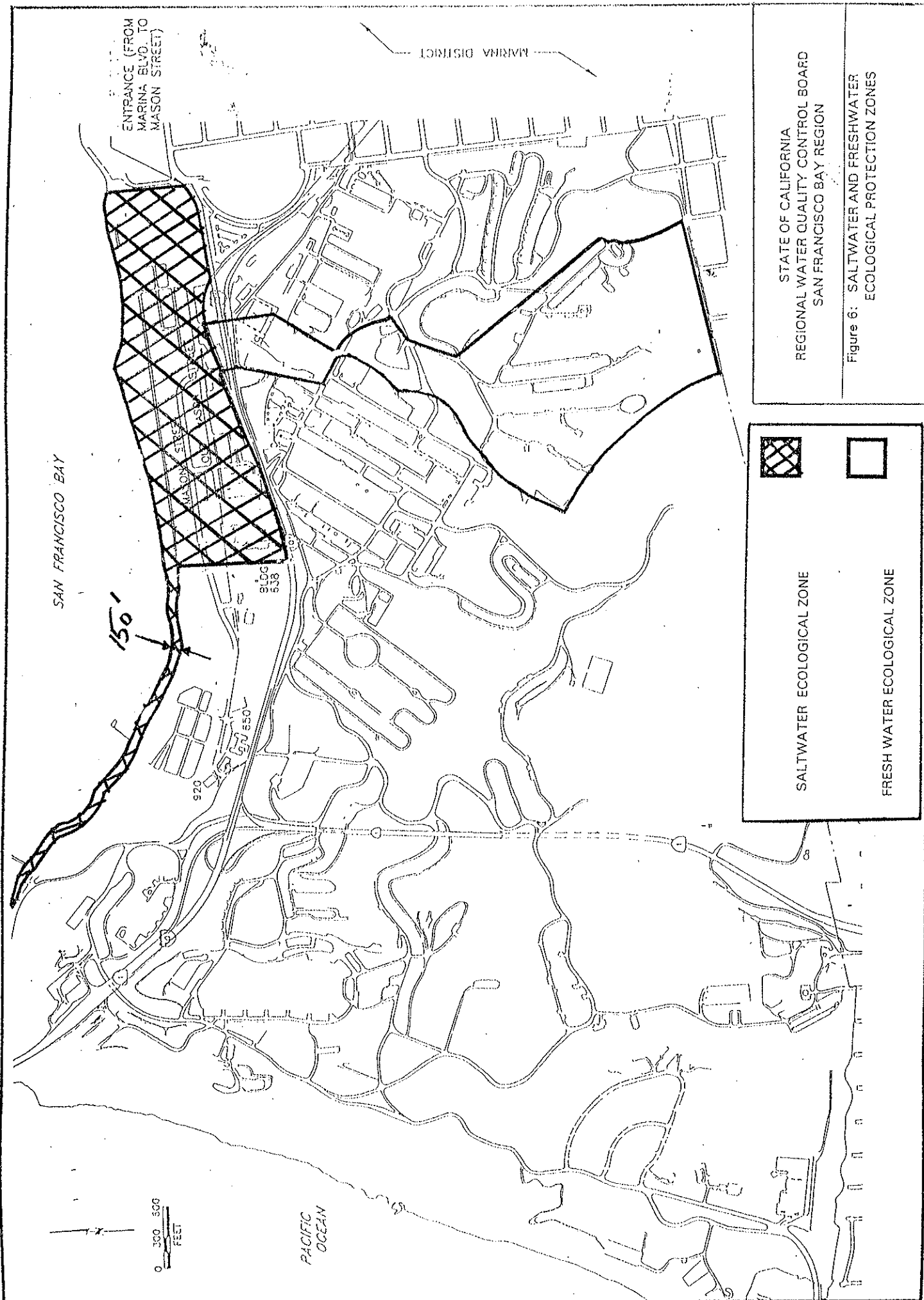
Figure 3: Petroleum Cleanup Flowchart





STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Figure 5: LTTDU layout



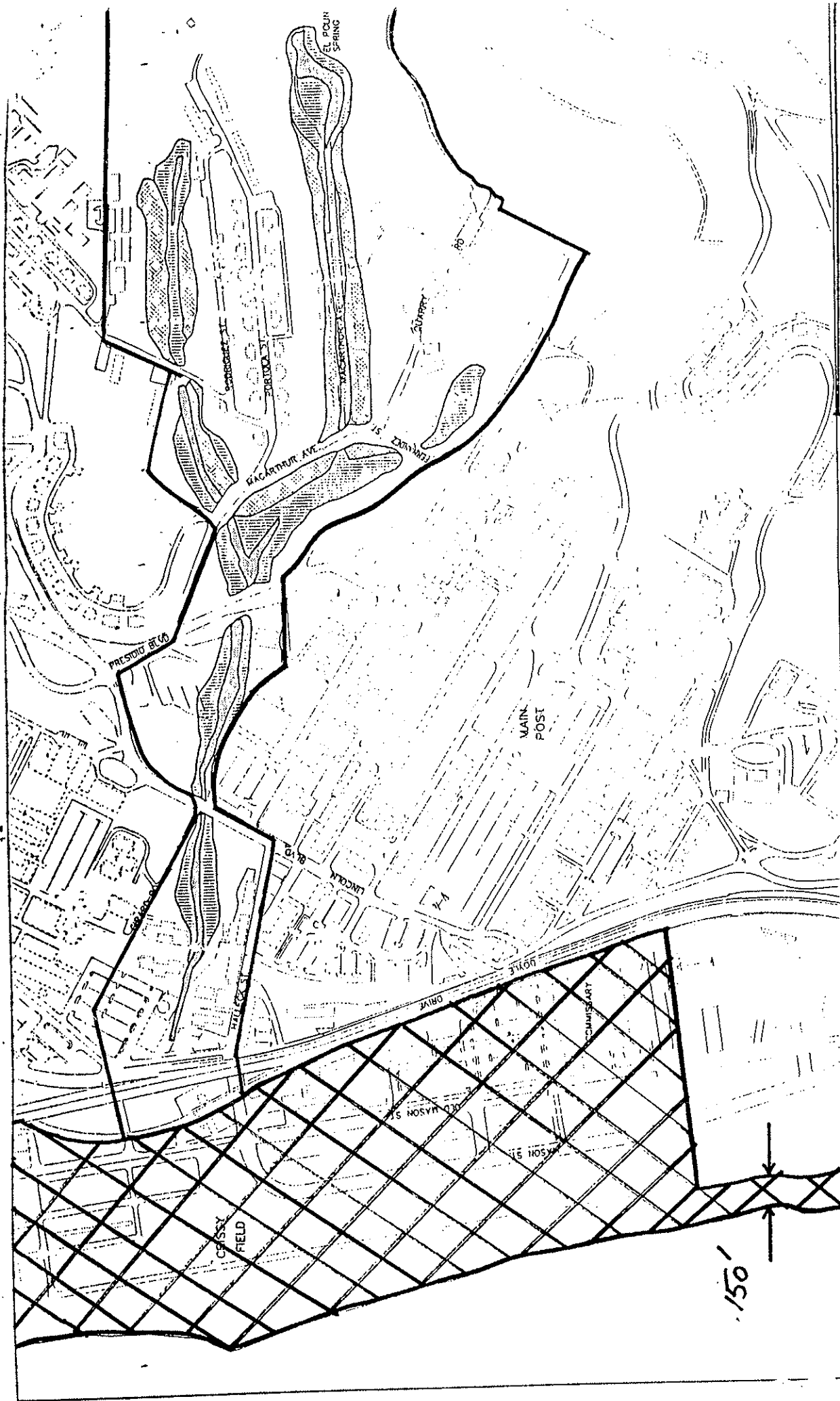
STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Figure 6: SALTWATER AND FRESHWATER
ECOLOGICAL PROTECTION ZONES



SALTWATER ECOLOGICAL ZONE

FRESH WATER ECOLOGICAL ZONE



LEGEND:



SALTWATER ECOLOGICAL ZONE



FRESH WATER ECOLOGICAL ZONE

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Figure 7: DETAIL MAP OF FRESHWATER
ECOLOGICAL PROTECTION ZONE

APPENDIX A

Site Cleanup Requirements
Presidio of San Francisco

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SECTION 1: SELF MONITORING PROGRAM

FOR

PRESIDIO
SITE WIDE SOIL AND GROUNDWATER MANAGEMENT
SAN FRANCISCO, SAN FRANCISCO COUNTY

ORDER NO. 96-070
CONSISTS OF
PART A
AND
PART B

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Self-Monitoring Program is issued in accordance with *Section 1*, Provisions 3.a.b. and 4. c.d.e.f of Regional Board Order No. 96-070.

The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the discharger in complying with the requirements of this Order.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved sampling and analysis plan.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to surface or groundwaters which actually or potentially receives surface or groundwater which pass over through,

or under waste materials or contaminated soils. In this case the groundwater or surface water beneath and/or adjacent to UST, AST and FDS sites.

3. Standard observations refer to:

Receiving Waters

- 1) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area.
- 2) Discoloration and turbidity: description of color, source, and size of affected area.
- 3) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 4) Evidence of beneficial use: presence of water associated wildlife.
- 5) Flow rate.
- 6) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.

a. The UST, AST or FDS site.

- 1) Evidence of ponded water.
- 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 3) Standard Analysis (SA) and measurements are listed in Part B.1.A below.

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The discharger is required to perform sampling, analyses, and observations in the following media:

1. Groundwater;
2. Soils.

and per the equivalent general requirements specified in Section 2550.7(e) of Article 5, Chapter 15.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. REGULAR REPORTING

Written monitoring reports, contaminated and treated soil sampling reports shall be filed by the 15th day of the month following the report period. In addition an annual report shall be filed as indicated in F.2 below. The reports shall be comprised of the following:

a. Letter of Transmittal

A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports

Site Cleanup Requirements
Presidio of San Francisco

shall be signed by a principal executive officer or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

- b. Each Monitoring Report shall include a compliance evaluation summary. The summary shall contain:

Groundwater

- 1. A graphic description of the velocity and direction of groundwater flow under /around the site, based upon the past and present water level elevations and pertinent visual observations.
 - 2. The method and time of water level measurement, the type(s) of sampling equipment used.
 - 3. A written discussion of the groundwater analyses performed.
 - 4. Type(s) of pumps used, placement for sampling, a detailed description of the sampling procedure, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.
- c. A comprehensive discussion of the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.

Soils and Groundwater

- 1. A tabular list of the sources, types and volumes of all wastes (soil and groundwater) removed. (Each source of waste must be identified according to location and type.)
- 2. A tabular list of dates, volumes and locations of the ultimate disposal of any waste. If all the material

produced during the monitoring period was used, a statement to that effect shall be submitted with each monitoring report.

3. Well Logs: A boring log and monitoring well construction log shall be submitted for each sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted in the following quarterly monitoring report.
 4. A tabular list of the names and addresses of the waste generators and haulers during the quarter.
 5. All analytical results and the dates the samples were taken and analyzed during the quarter.
 6. A certification that all wastes received, processed, handled, or disposed off were in compliance with the Board's requirements.
- d. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.
1. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.
 2. In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory

QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is outside EPA or approved laboratory established limits; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

2. REPORTING

By January 31 of each year the discharger shall submit an annual report to the Board covering the previous calendar year. This report shall contain:

- a. Tabular and graphical summaries of the monitoring data obtained during the previous year; the report should be accompanied by a 3 1/2" computer data disk, MS-DOS ASCII format, tabulating the year's data.
- b. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.

3. FAILURE TO FURNISH REPORTS

Any person failing or refusing to furnish technical or monitoring reports or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. VALIDATION SOIL SAMPLING AND ANALYSES - Report Quarterly

1. Validation sampling and analyses shall be performed as outlined in the report: *Fuel Product Action Level Development Report, Presidio of San Francisco, October 1995*, Section 2.5, pg 2-23 to validate the assumptions inherent in the development of soil action levels. Validation analysis and sampling includes:
 - a. Soil classification;
 - b. Field observation of impacted soils;
 - c. Fraction of Organic carbon;
 - d. Particle size distribution.
2. Soil sampling and analyses at all UST, AST and FDS locations shall be performed as outlined in the report *Basewide Corrective Action Plan, Presidio of San Francisco, January 1996*, Section 8 or subsequent variations as approved by the board. Soil Action levels will be considered achieved when all site closure samples collected from a site have contaminant concentrations less than the applicable site action levels. The minimum requirements for soil sampling include:

A. *Water not present in tank excavation*

1. Remove a minimum of 2 feet of native soil before sampling.
2. Sample areas of obvious soil contamination.
3. Sample at the following intervals:

Tank Size (gallons)	No. of Samples	Location of Soil Samples
< 1000	one per tank	Fill or pump end of

Site Cleanup Requirements
Presidio of San Francisco

		tank
1000 -10,000	Two per tank	One at each end of tank
> 10,000	Three or more	Ends and middle or spaced along the length of the tank.
Piping (UST or AST)	one every 20 linear feet	Approximately 2 feet below pipeline

B. Corrective Action Plan or Site Investigation Requirements: *Water present in tank excavation*

1. The tank excavation will be purged and allowed to refill before sampling.
2. The water sample is to be representative of water in the tank excavation.
3. Sample at the following intervals:

Tank Size (gallons)	No. Soil Samples	Location of Soil Samples	Min. No. Water Samples
$\leq 10,000$	Two	Ends of sidewall next to tank ends at soil water interface	One
> 10,000	Four	Ends of sidewall next to tank ends at soil Water interface	One

C. FUEL DISTRIBUTION SAMPLING (FDS)

a. Sections previously removed:

sampling frequency and analyses: One shallow sample at approximately five feet below ground surface (bgs) collected at 100 foot intervals and analyzed for TPH and total PAHs using

immunoassay with ten percent laboratory verification

b. Sections to be removed :

Following mechanical integrity testing

1. Sections that passed initial testing:

sampling frequency and analyses: One sample collected at 100 foot intervals. For Laterals, a minimum of one sample per lateral at a joint or change of direction and analyzed as above.

2. Sections that failed initial integrity testing:

sampling frequency and analyses: One sample collected at every known pressure failure location and at 100 foot intervals. For the laterals a minimum of two samples per lateral or change of direction and analyzed as above.

c. Sections to be abandoned in place:

1. Inaccessible sections (e.g. under buildings or highways):

Nitrogen pressure test only.

2. Accessible but economically infeasible to remove sections

(e.g. Sections located under other utilities)

Pressure and tracer testing to identify leak locations.

sampling frequency and analyses: For the main line, one shallow soil sample collected at every known pressure failure location and at 50 foot intervals and analyzed as above.

d. Other: Visibly stained sections/areas

D. GROUNDWATER MONITORING - Report Quarterly

Groundwater samples will be collected at sites where groundwater may be or is in contact with residual fuel product. Groundwater monitoring will be conducted until concentrations of constituents of concern are consistently less than applicable water quality goals outlined in this Order.

I, Loretta Barsamian Executive Officer, hereby certify that the foregoing

Site Cleanup Requirements
Presidio of San Francisco

Self-Monitoring Program:

1. Is effective on the date shown below.
2. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.

A handwritten signature in cursive script, reading "Loretta K. Barsamian".

Loretta K. Barsamian
Executive Officer

Date Ordered:

Site Cleanup Requirements
Presidio of San Francisco

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SECTION 2: SELF MONITORING PROGRAM

FOR

PRESIDIO
LOW TEMPERATURE THERMAL DESORPTION UNIT
SAN FRANCISCO, SAN FRANCISCO COUNTY

ORDER NO. 96-070

CONSISTS OF

PART A

AND

PART B

Site Cleanup Requirements
Presidio of San Francisco

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Self-Monitoring Program is issued in accordance with *Section 2*, Provisions 10a, 10b and *Both Sections*, Provision 12 of Regional Board Order No. 96-070.

The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the discharger in complying with the requirements of this Order.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved sampling and analysis plan.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface water which actually or potentially receives surface or groundwaters which pass over,

through, or under waste materials or contaminated soils. In this case San Francisco Bay is considered a receiving water.

3. Standard observations refer to:

Receiving Waters

- 1) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area.
- 2) Discoloration and turbidity: description of color, source, and size of affected area.
- 3) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 4) Evidence of beneficial use: presence of water associated wildlife.
- 5) Flow rate.
- 6) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.

b. The treatment facility.

- 1) Evidence of ponded water.
- 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 3) Standard Analysis (SA) and measurements are listed in Part B.1.A below.

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The discharger is required to perform sampling, analyses, and observations in the following media:

1. Ponded water;
2. Petroleum contaminated soils; and
3. Thermal treated soils.

and per the general requirements specified in this Order.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. REGULAR REPORTING

Written detection monitoring reports, contaminated and treated soil sampling reports shall be filed by the 15th day of the month following the report period. In addition an annual report shall be filed as indicated in F.2 below. The reports shall be comprised of the following:

a. Letter of Transmittal

A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer or his duly authorized

representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

- b. Each Monitoring Report shall include a compliance evaluation summary. The summary shall evaluate ponded water and surface water monitoring for the reporting period including:
 - Ponded water and surface water observations, measurements, and analytical results (if any) for the reporting period. These observations include (as applicable): the time of discovery, analyses performed and , method of disposal.
 - Additionally, the following components should be included in the Self Monitoring Report (as applicable): a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.
- c. Each Soil Treatment Report submitted to the Board shall contain the following information:
 - 1. A tabular list of the sources, types and volumes of all wastes treated or received daily. (Each source of waste must be identified according to location and type.)
 - 2. The Discharger shall certify either by the procedures contained in section 66260.200, Title 22 CCR, or based on acceptable analytical data, that each load of waste to be treated is nonhazardous.
 - 3. A tabular list of dates, volumes and locations of the ultimate disposal of any treated materials. . If all the material produced during the monitoring period was used, a statement to that effect shall be submitted with each monitoring report.

Site Cleanup Requirements
Presidio of San Francisco

4. A tabular list of the names and addresses of the waste generators and haulers during the quarter.
 5. All analytical results and the dates the samples were taken and analyzed during the quarter.
 6. A certification that all wastes received, processed, handled, or disposed off were in compliance with the Board's requirements.
- d. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.
1. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.
 2. In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is outside EPA or approved laboratory established limits; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

2. REPORTING

By January 31 of each year the discharger shall submit an annual report to

the Board covering the previous calendar year. This report shall contain:

- a. Tabular and graphical summaries of the monitoring data obtained during the previous year.
- b. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.
- c. A map showing the locations in which the treated soils were used during the previous calendar year.
- f. A written summary of contaminated soil and treated soil sampling analyses indicating values of parameters analyzed, total volumes, and locations of the ultimate disposal of treated wastes, any untreated or partially treated wastes that were not processed, or material that was used as backfill or foundation material.

3. FAILURE TO FURNISH REPORTS

Any person failing or refusing to furnish technical or monitoring reports or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. SOIL SAMPLING AND ANALYSES - Report Quarterly

Soil sampling and analyses shall be performed as outlined below.

1. For areas of suspected commingled pollution (i.e solvents and fuel sites) or previously unknown site(s):

Before Treatment Sampling/Analysis (Areas of commingled or unknown sites) :

Analyses:

- Benzene

Rate:

1-4 point composite per 50 CY for the first 500 CY, then one composite every 200 CY thereafter

- pH
- Ignitability
- Lead (gasoline sites only)
- Toxicity (LC₅₀)

- PCBs/Pesticides 1- 4 point composite per 250 CY for the first 500 CY, then one composite every 2000 CY thereafter

- Dioxins/Furans

2. **After treatment sampling** - Analyses shall be run on treated soil as follows:

Analyses:

- PAHs

Rate:

1- 4 point composite per 50 cubic yards for the first 500 CY, then one composite every 100 CY thereafter

- Gasoline *

Site Cleanup Requirements
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- Diesel *
- BTEX *

* Synthetic 1- 4 point composite per 50
Precipitation CY for the first 500 CY, then
Leaching one composite per 1000 CY
Procedure thereafter
(EPA Method 1312)

- Each composite sample shall be analyzed using the following analytical methods:

Parameter	Units	Method
Total Petroleum Hydrocarbons (TPH)	mg/kg	EPA 8015 (Modified for gas or diesel)
Benzene, Toluene, Xylenes, Ethylbenzene	mg/kg	EPA 8020
PAHs		Immunoassay (with 10% laboratory verification)

B. FACILITIES MONITORING - Inspect Monthly, Report Quarterly.

The Discharger shall inspect all facilities to ensure proper and safe operation and report quarterly. The facilities to be monitored shall include, but not be limited to:

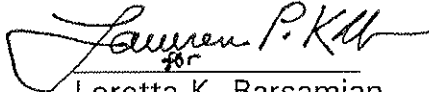
- a. Contaminated soil storage area;
- b. Clean soil storage area;
- c. Soil Treatment area;
- d. Drainage runoff control structures;

I, Loretta Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Is effective on the date shown below.

Site Cleanup Requirements
Presidio of San Francisco

2. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.


Loretta K. Barsamian
Executive Officer

Date Ordered: